

Claims

1. An aqueous substrate coating or imbibing solution for treating a substrate prior to printing, and for enhancing image visualization and retention of ink jet inks and comprising N-methylmorpholine-N-oxide.
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2. An aqueous coating formulation containing solids, for enhancing image visualization and retention of ink- jet inks, comprising:
 - a) N-methylmorpholine-N-oxide
 - 10 b) a cationic polymer or copolymer,
 - c) and a fabric softener.
3. The aqueous coating of claim 2 further containing urea.
- 15 4. The aqueous coating of claim 2 wherein said coating includes between about 0.05-10 percent total solids of N-methylmorpholine-N-oxide.
5. The aqueous coating of claim 4 wherein said coating includes between about 2 and 5 percent total solids N-methylmorpholine-N-oxide.
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6. The aqueous coating of claim 2 wherein said coating includes between about 25-75 percent total solids cationic polymers or copolymers.
7. The aqueous coating of claim 6 wherein said coating includes between about 25 and 40 percent total solids cationic polymers or copolymers.
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8. The aqueous coating of claim 2 wherein said coating includes between about 5 and 20 percent total solids fabric softeners.
- 30 9. The aqueous coating of claim 8 wherein said coating includes between about 10 and 20 percent total solids fabric softeners.
10. The aqueous coating of claim 2 further including a latex polymer.
- 35 11. The aqueous coating of claim 10 wherein said latex polymer is present in an amount of between about 0-50 percent total solids.

12. The aqueous coating of claim 2 wherein said total solids are present in an amount between about 10-50 percent.
- 5 13. The aqueous coating formulation of claim 2 further including urea.
14. The aqueous coating formulation of claim 13 wherein said urea is present in an amount of between about 0.05 and 7 percent total solids.
- 10 15. The aqueous coating formulation of claim 14 wherein said urea is present in an amount of between about 2 and 5 percent total solids.
16. The aqueous coating formulation of claim 2 further including a sequestering agent.
- 15 17. An aqueous coating formulation containing solids, for enhancing image visualization and retention of reactive dye-based inks, comprising:
- a) N-methylmorpholine-N-oxide
 - b) a cationic polymer or copolymer,
 - 20 c) a fabric softener,
 - d) urea, and
 - e) a component selected from sodium bicarbonate, sodium carbonate or combinations thereof.
- 25 18. The aqueous coating formulation of claim 17 wherein either the sodium bicarbonate, sodium carbonate, or combination thereof is present in an amount of between about 1-10 percent of the total solids.
19. An aqueous coating formulation containing solids, for enhancing image visualization and retention of reactive dye-based inks, comprising:
- 30 a) N-methylmorpholine-N-oxide
- b) a cationic polymer or copolymer,
 - c) a fabric softener,
 - d) urea, and
 - 35 e) ammonium salts of multifunctional weak acids.

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20. The aqueous coating formulation of claim 19 wherein said ammonium salts are selected from the group consisting of ammonium oxalate, ammonium tartrate and ammonium sulfate.
21. The aqueous coating formulation of claim 20 wherein said ammonium salts are present in an amount of between about 0.1 and 5.0 percent total solids.
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22. A method of treating a substrate so as to improve the adhesion, colorfastness and washfastness of an acid dye-based ink jet ink printed onto the substrate, and which substrate may be exposed to a post-treatment step following printing, including the steps of:
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- a) providing a substrate, and
 - b) pretreating the substrate with an aqueous coating formulation comprising N-methylmorpholine-N-oxide, a cationic polymer or copolymer, a fabric softener, urea, and an ammonium salt of multifunctional weak acids.
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23. A method of producing a printed substrate so as to improve the adhesion, colorfastness and washfastness of an acid dye-based ink jet ink printed onto the substrate, including the steps of:
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- a) providing a substrate,
 - b) treating the substrate with an aqueous coating formulation comprising NMMO, a cationic polymer or copolymer, a fabric softener, urea, and either ammonium sulfate, oxalate or tartrate,
 - c) drying the substrate,
 - d) printing on the substrate with an acid dye-based ink, and
 - e) optionally post-treating the printed substrate.
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24. A method of treating a substrate so as to improve the adhesion, colorfastness and washfastness of a reactive dye-based ink jet ink printed onto the substrate, and which substrate may be exposed to a post-treatment step following printing, which method includes the steps of:
- a) providing a substrate, and

- b) pretreating the substrate with an aqueous coating formulation comprising NMMO, a cationic polymer or copolymer, a fabric softener, urea, and either sodium bicarbonate, sodium carbonate or combination thereof.

- 5 25. A method of producing a printed substrate so as to improve the adhesion, colorfastness and washfastness of a reactive dye-based ink jet ink printed onto the substrate, including the steps of:
- a) providing a substrate,
 - b) pretreating the substrate with an aqueous coating formulation
 - 10 comprising NMMO, a cationic polymer or copolymer, a fabric softener, urea, either sodium bicarbonate, sodium carbonate or combination,
 - c) drying the substrate,
 - d) printing on the substrate with a reactive dye-based ink, and
 - e) optionally post-treating the printed substrate.
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